What is claimed is:

1. A nucleic acid molecule with the function of a caryopsis-specific promoter, which nucleic acid molecule

a) comprises the nucleic acid sequence defined by nucleotide 1-4683 of Seq ID No. 1;

b) comprises one or more sequence elements selected from the group consisting of Seq ID No.2; Seq ID No. 3; Seq ID No. 4; Seq ID No.5; Seq ID No. 6; Seq ID No. 7; Seq ID No.8; Seq ID No.9 and Seq ID No.10;

c) comprises a functional portion of the nucleic acid sequence stated under a);

d) comprises a sequence which hybridizes with at least one of the nucleotide sequences stated under a) and/or b); and/or

e) comprises a sequence which has approx. 60-99% identity, preferably approx. 75-99% identity, in particular approx. 90-99% identity and very especially preferably approx. 95-99% identity with one of the nucleic acid sequences stated under a).

2. A nucleic acid molecule as claimed in claim 1, which is a promoter active in monocots.

3. An expression cassette comprising a nucleic acid molecule as claimed in claim 1.

4. A vector comprising a nucleic acid molecule as claimed in claim 1 or an expression cassette as claimed in claim 3.

5. A vector as claimed in claim 4 which is suitable for transforming plant cells.

6. A host cell which is genetically modified with a nucleic acid molecule as claimed in claim 1, with an expression cassette as claimed in claim 3 or with a vector as claimed in claim 4.

7. A host cell as claimed in claim 6, which is a pro- or eukaryotic cell.

8. A host cell as claimed in claim 6, which is a plant cell.

9. A plant comprising plant cells as claimed in claim 8.

10. Propagation material or harvested material from plants as claimed in claim 9, comprising plant cells as claimed in claim 8.

11. A method of generating transgenic plant cells as claimed in claim 8, wherein plant cells, plant tissue, plant parts or protoplasts are transformed with a nucleic acid molecule as claimed in claims 1, with a vector as claimed in claims 4, with an expression cassette as claimed in claim 3 or with a host cell as claimed in claim 6, and the transformed plant cells, plant tissues, plant parts or protoplasts are cultivated in a growth medium.

12. A method of generating transgenic plants as claimed in claim 9, wherein plant cells, plant tissue, plant parts or protoplasts are transformed with a nucleic acid molecule as claimed in claim 1, with a vector as claimed in claim 4 , with an expression cassette as claimed in claim 3 or with a host cell as claimed in claim 6, the transformed plant cells, plant tissues, plant parts or protoplasts are grown in a growth medium, and intact plants are regenerated from the obtained plant cells.

13. The use of a nucleic acid molecule as claimed in claim 1 for the caryopsis-specific expression of genes in genetically modified plants.

14. The use of a nucleic acid molecule as claimed in claim 1 for the caryopsis-specific suppression of genes in genetically modified plants.

15. A method for the caryopsis-specific gene expression in plants, wherein a nucleic acid molecule as claimed in claims 1 is stably integrated into the genome of a plant cell, and the plant is regenerated from said plant cell.

16. A method for the caryopsis-specific gene suppression in plants, wherein a nucleic acid molecule as claimed in claim 1 is stably integrated into the genome of a plant cell, and a plant is regenerated from said plant cell.